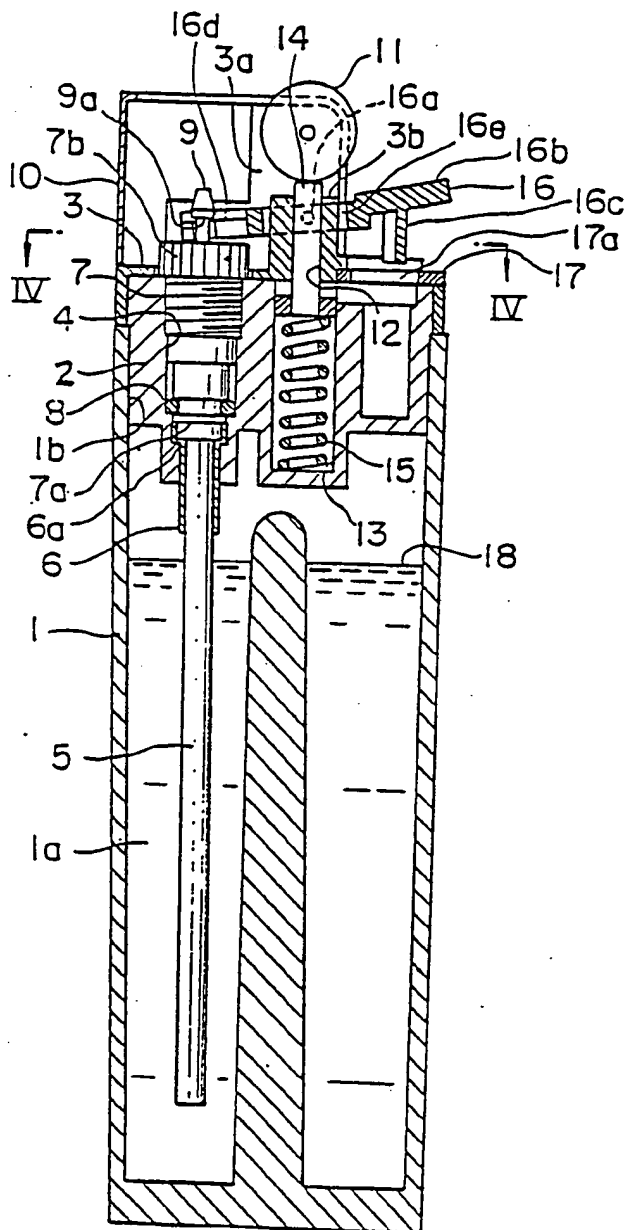


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FIG. 1





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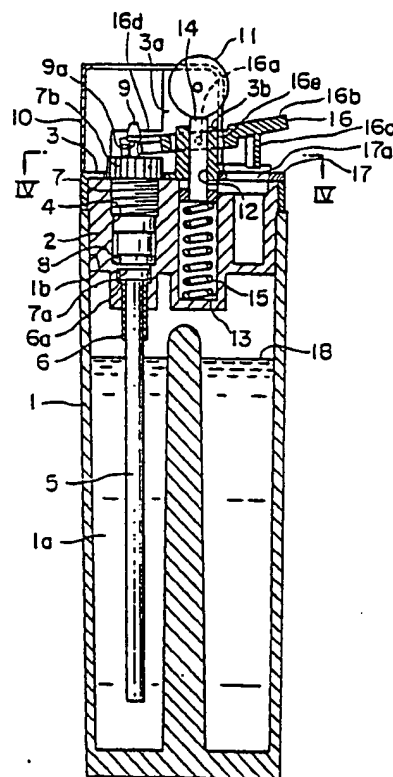
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⑤④ **Lighter.**

(57) The invention relates to a lighter comprising a fuel container with a fuel nozzle, an ignition control member rotatable with respect to the container by means of which the nozzle opening, being normally closed, can be opened, in which case fuel is discharged from the container, and means to ignite the discharged fuel stream, when the nozzle is opened characterized by means, which may lock the ignition control member.

FIG. 1



EP 0 296 281 A1

LIGHTER

The invention relates to a lighter comprising a fuel container with a fuel ignition control member rotatable with respect to the container by means of which the nozzle opening being closed can be opened in which case fuel is discharged from the container and means to ignite the discharged fuel stream, when the nozzle is opened. Such lighters are generally known.

The conventional lighters have the drawback that they do not comprise a safety mechanism preventing the ignition control member from being rotated erroneously in case the lighter is placed in a pocket or in something similar.

The present invention has been developed to eliminate this drawback of the known lighters.

A lighter according to the invention is characterized by means which may lock the ignition control member. An embodiment of the lighter of the invention is characterized by the fact that the means for locking the ignition control member consists of a rotatable safety control member being provided with a hole or recess which is adapted to the cross section of a projecting portion of the end portion of the ignition control member, said hole or recess has such a shape and position that in the locking position of the rotatable safety control member said projecting portion comes into contact with the safety control member beyond the hole or recess, when it is tried to rotate the ignition control member and in the release position of the safety control member said projecting portion penetrates the hole or recess, when the ignition control member is rotated.

In a lighter according to this embodiment, when the safety control member is rotated within its fuel discharge range, the projecting portion of the ignition control member penetrates the hole or recess of the safety control member. As a consequence the fuel injection nozzle is brought into the opened state, whereby fuel is discharged from the nozzle.

However, when the safety control member is rotated outside its fuel discharge range and one tries to rotate the ignition control member the projecting portion thereof is brought into abutting contact with a portion outside the hole or recess of the safety control member, whereby the ignition control member cannot be further rotated, so that the fuel injection nozzle remains closed and fuel discharge is prevented.

The present device will hereafter be described with reference to an embodiment shown in the accompanying figures.

Fig. 1 is a sectional view showing one of the embodiments of the lighter according to the present invention.

Fig. 2 is a sectional view showing the essential portions of the above embodiment in the state where fuel is discharged.

Fig. 3 is a plan view showing the above embodiment with the file wheel and the windshield being removed.

Fig. 4 is a sectional view taken along the line IV-IV in Fig. 1 (the safety control member is rotated beyond the fuel discharge range), and

Fig. 5, showing the above embodiment, is a sectional view in the same sectional position as in Fig. 4, wherein the safety control member is rotated within the fuel discharge range.

Figures 1 through 5 show an embodiment of the device according to the invention. In this embodiment, the liquid fuel 18 is present in the lower part 1a of the container, made of synthetic resin. The container 1 is closed with the cover 3 made of synthetic resin. In the upper portion 1b of the container the part 2 is present. This part 2 is provided with a hole, enlarged in a stepwise way.

A fuel lifting pipe 5 made of porous synthetic material extends from the lower part 1a of the container to the hole 4. Its upper part is surrounded by the part 6. A nozzle 7 is screwed in the stepwisely enlarged portion 6a of the part 6. An O-ring 8 is interposed between the lower part of the nozzle 7 and the inner surface of the hole 4.

Through the central part 7b of the nozzle 7 there extends a vertically movable injection pipe 9. This part is pressed downwardly by a spring (not shown) in the nozzle 7. The top portion of the nozzle 7 projects outwardly from the part 7b and is provided with a portion 9a enlarged in a stepwise way. In the nozzle 7 a conventional valve mechanism (not shown) is provided. This valve mechanism maintains the injection pipe 9 in the closed state when it is lowered by the spring. On the other hand when the pipe 9 is raised to a predetermined level or more, the valve mechanism brings the pipe 9 into the opened state, whereby the nozzle 7 is in open connection with the fuel lifting pipe 5. Furthermore a fuel control-lever (not shown) is coupled to the part 7b, whereby the control-lever is rotating the part 7b in order to control the fuel discharge flow-rate from the pipe 9.

The cover 3 is integrally formed at its opposite sides with a pair of support walls 3a. A file wheel 11 is rotatably supported between these support walls 3a. Furthermore the cover 3 is integrally provided with a flint support portion 3b projecting towards the file wheel 11. Said flint support portion

3b comprises a flint support hole 12.

A spring receiving hole 13 is present directly below the flint support hole 12 in the part 2. A flint 14 is vertically displaceable in the flint support hole 12. Said flint 14 is pressed towards the file wheel 11 by a compression coil spring 15 in the spring receiving hole 13. The cover 3 is provided with a windshield 10 to protect the contact between the flint 14 and the file wheel 11, and the fuel injection nozzle 9.

A lever-shaped ignition control member 16 is rotatable around the shafts 16a projecting to opposite sides. Said shafts 16a are rotatably mounted in the support walls 3a. One end portion 16a of the ignition control member 16 can be operated by the user with a finger. Said end portion 16b has a downwardly projecting portion 16c.

As shown in Figures 4 and 5 said projecting portion 16c has a circular arcuate shape in cross-section. The other end of the ignition control member 16, is provided with a kerf 16d, with which the stepped portion 9a of the fuel injection pipe 9 is engaged. The ignition control member 16 has a hole 16e through which the flint support portion 3b of the cover 3 extends in such a way that it does not interfere with the rotation of the ignition control member 16.

The cover 3 is provided with a rotatable generally disc-shaped safety control member 17. As shown in figures 4 and 5 said safety control member 17 has a hole 17a with the shape of an eye and is provided with a tab 17b.

When the safety control member 17 is rotated into the position as shown in fig. 5 within the fuel discharge range and the user presses the end portion 16b of the ignition control member 16 downwards, the ignition control member 16 is rotated about the shafts 16a and the projecting portion 16c penetrates the hole 17a of the safety control member 17, and the end portion of the ignition control member 16 on the side of the fuel injection pipe 9 is raised to a certain level. Also the fuel injection nozzle 9 is then raised, bringing the nozzle 9 into the opened state by the valve mechanism, so that gaseous fuel discharges from the fuel oil container through the fuel lifting pipe 5 and the nozzle 7.

Simultaneously the file wheel 11 is rotated in order to rasp the flint 14, and to ignite.

However, when the safety control member 17 is rotated into the position as shown in fig. 4 and it is tried to rotate the ignition control member 16, its projecting portion 16c comes into abutting contact with a part of the safety control member 17 beyond the hole 17a with as a consequence that the ignition control member 16 cannot rotate further and the fuel injection pipe 9 remains closed.

Of course, the shape of the projecting portion

of the ignition control member and the shape of the hole in the safety control member are not limited to the shapes as shown in the figures, provided that the adopted shapes can perform the functions equivalent to those in the above embodiment.

Moreover, the safety control member may be provided with a recess instead of with a hole.

Claims

1. A lighter comprising a fuel container with a fuel nozzle, an ignition control member rotatable with respect to the container by means of which member the nozzle opening being normally closed can be opened in which case fuel is discharged from the container, and means to ignite the discharged fuel stream, when the nozzle is opened, characterized by means which may lock the ignition control member.

2. A lighter according to claim 1, characterized in that the means for locking the ignition control member consists of a rotatable safety control member being provided with a hole or recess which is adapted to the cross section of a projecting part of the end portion of the ignition control member, said hole or recess has such a shape and position that in the locking position of the rotatable safety control member said projecting part comes into contact with the safety control member when it is tried to rotate the ignition control member, and in the release position of the safety control member said projecting portion penetrates into the hole or recess when the ignition control member is rotated.

FIG. 2

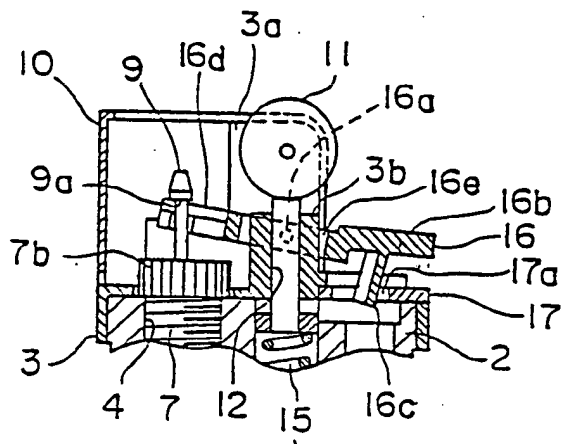


FIG. 3

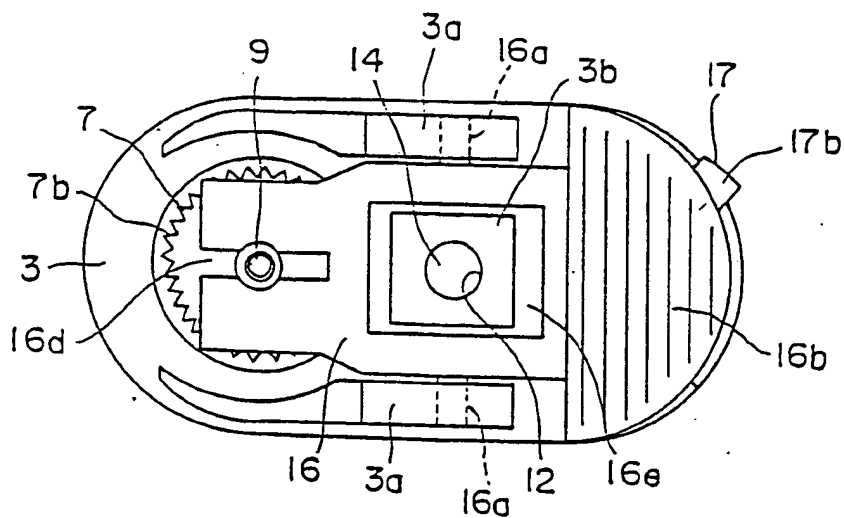


FIG. 4

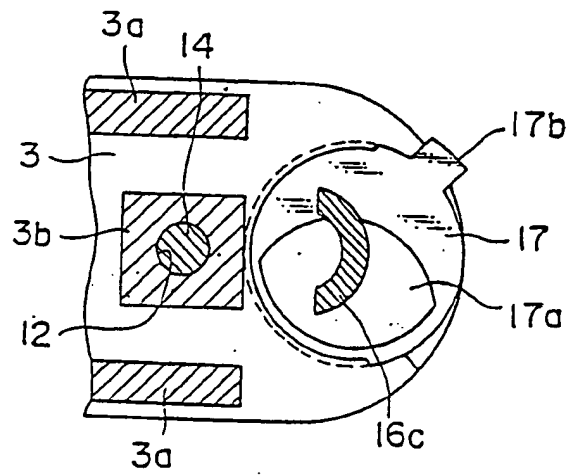
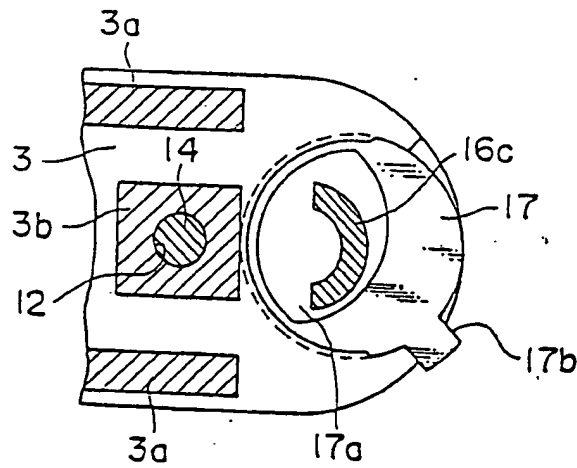


FIG. 5





European Patent
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EUROPEAN SEARCH REPORT

Application Number

EP 87 20 1617

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	US-A-2 727 376 (P.W. FELT) * Column 4, lines 44-52; figures * ---	1	F 23 Q 2/16
A	GB-A-2 062 200 (USIFLAMME) * Page 5, claim 1, figures 1-5 * ---	1	
A	FR-A-2 198 092 (ROSENTHAL) * Page 9, lines 1-4, figures 23,24 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			F 23 Q
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 19-09-1988	Examiner VANHEUSDEN J.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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